TCEQ Interoffice Memorandum

To: Joel Stanford
Mechanical/Agricultural/Construction Section

Thru: Daniel Menendez, Team Leader
Air Dispersion Modeling Team (ADMT)

From: Javier Rosa
ADMT

Date: March 18, 2013

Subject: Air Quality Analysis Audit – Building Materials Corporation of America (RN100788959)

1. Project Identification Information

Permit Application Number: 7711A
NSR Project Number: 183376
ADMT Project Number: 3942
NSRP Document Number: 462376
County: Dallas
ArcReader Published Map: \\Msgiswrk\APD\MODEL PROJECTS\3942\3942.pmf

Air Quality Analysis: Submitted by Trinity Consultants, February 2013, on behalf of Building Materials Corporation of America. Supplemental information was provided March 2013.

2. Report Summary

The air quality analysis is acceptable for all review types and pollutants. The results are summarized below.

A. Minor Source NSR and Air Toxics analysis

Table 1. Project-Related Modeling Results for State Property Line

Pollutant	Averaging Time	GLCmax (µg/m^3)	De Minimis (µg/m^3)
SO_2	1-hr	0.5	20.4

Table 2. Modeling Results for Minor NSR De Minimis

Pollutant	Averaging Time	GLCmax (µg/m^3)	De Minimis (µg/m^3)

SO_2	1-hr	0.5	7.8
SO_2	3-hr	0.3	25
SO_2	24-hr	0.1	5
SO_2	Annual	0.01	1
PM_{10}	24-hr	1.17	5
$PM_{2.5}$	24-hr	1.17	1.2
$PM_{2.5}$	Annual	0.22	0.3
NO_2	1-hr	1.7	7.5
NO_2	Annual	0.7	1
CO	1-hr	57	2000
CO	8-hr	26	500

The GLCmax are the maximum predicted concentrations associated with one year of meteorological data.

The justification for selecting the EPA's interim 1-hr NO_2 and 1-hr SO_2 De Minimis levels was based on the assumptions underlying EPA's development of the 1-hr NO_2 and 1-hr SO_2 De Minimis levels. As explained in EPA guidance memoranda[1,2], the EPA believes it is reasonable as an interim approach to use a De Minimis Level that represents 4% of the 1-hr NO_2 and 1-hr SO_2 NAAQS.

3. Model Used and Modeling Techniques

AERMOD (Version 12345) was used in a refined screening mode.

A unitized emission rate of 1 lb/hr was used to predict generic short-term and long-term impacts. The generic impacts were multiplied by the proposed pollutant specific emission rates to calculate a maximum predicted concentration for each averaging period.

A. Land Use

[1] www.epa.gov/region07/air/nsr/nsrmemos/appwso2.pdf

[2] www.epa.gov/nsr/documents/20100629no2guidance.pdf

Medium roughness and elevated terrain were used in the modeling analysis. These selections are consistent with the AERSURFACE analysis, topographic map, DEMs and aerial photography. The selection of medium roughness is reasonable.

B. Meteorological Data

Surface Station and ID: Dallas/Ft. Worth, TX (Station #: 3927)
Upper Air Station and ID: Fort Worth, TX (Station #: 3990)
Meteorological Dataset: 2008
Profile Base Elevation: 184 meters

C. Receptor Grid

The grid modeled was sufficient in density and spatial coverage to capture representative maximum ground-level concentrations.

D. Building Wake Effects (Downwash)

Input data to Building Profile Input Program Prime (Version 04274) are consistent with the aerial photography, plot plan and modeling report.

4. Modeling Emissions Inventory

The modeled emission point source parameters and rates were consistent with the modeling report. The source characterization used to represent the sources was appropriate.

NO_x to NO_2 conversion factors of 0.8 and 0.75 were applied to the predicted 1-hr and annual NO_x concentrations, respectively, which is consistent with guidance for combustion sources.

Maximum allowable hourly emission rates were used for the short-term averaging time analyses, and annual average emission rates were used for the annual averaging time analyses.